Canada Alberta

FOREST RESOURCE DEVELOPMENT AGREEMENT
ENTENTE SUR LA MISE EN VALEUR DES RESSOURCES FORESTIERES

Canada Alberta

The Canada-Alberta Forest Resource Development Agreement is a subsidiary agreement of the Canada-Alberta Economic and Regional Development Agreement, which provides coordination and cooperation between the governments of Alberta and Canada in areas of Alberta's economic development.

The Canada-Alberta Forest Resource Development Agreement is funded equally by the governments of Canada and Alberta, from April 1, 1984, to March 31, 1989.

Its primary objectives are to ensure the long-term availability of timber supplies; to optimize timber uses; and to contribute to the growth and diversification of Alberta's economy.

The Agreement comprises three programs: Reforestation; Applied research, technology transfer and opportunity identification; and Public information, evaluation and administration. These programs are managed by a joint Directorate and are implemented by Forestry Canada and the Alberta Forest Service.

L'Entente Canada-Alberta sur la mise en valeur des ressources forestières est auxiliaire à l'Entente Canada-Alberta sur le développement économique et régional, qui vise à assurer la coordination et la coopération des deux gouvernements relativement au développement économique de l'Alberta.

L'Entente Canada-Alberta sur la mise en valeur des ressources forestières est financée à parts égales par les gouvernements du Canada et de l'Alberta, et a cours du 1er avril 1984 au 31 mars 1989.

Ses objectifs principaux sont assurer la disponibilité à long terme de réserves de bois; optimiser leur utilisation; et contribuer à la croissance et la diversification de l'économie de la province.

L'Entente comprend trois programmes: Reboisement; Recherche appliquée, transferts de connaissances techniques et relevé des occasions; et Information, évaluation et administration. Ces programmes sont gérés par un Bureau de direction conjoint, et mis en oeuvre par Forêts Canada et le Service forestier de l'Alberta.

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Materials Handling

Forestry Department
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DISCLAIMER

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Summary

In an effort to provide Alberta panel producers with a "state-of-the-art" pilot plant facility, a project sponsored 50/50 between the Alberta Research Council and the Canada-Alberta Forest Resource Development Agreement was undertaken.

This project included the installation and commissioning of a material handling system for the 4' x 8' press line.

In terms of the specific objectives of this project it can be concluded that:

1. installation of a second metering bin for the 4' x 8' press line is complete,

2. installation of conveyors for transporting furnish is complete, but the reclaim conveyors were omitted from the final scope, and

3. debugging and commissioning of the second metering is complete, and transport conveyors have been commissioned individually (final commissioning of the full transport conveyors is awaiting electrical hook up by APWSS).

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The financial contribution to the Alberta Research Council's Forest Products Research and Development Program from the Alberta Forest Service (Alberta Forestry) and Forestry Canada through the Canada-Alberta Forest Resource Development Agreement is greatly appreciated.

1. OBJECTIVES

The objective of this project is to provide Alberta panel producers with a "state-of-the-art" pilot plant facility.

The goal for this year is to install and commission a material handling system for the 4' x 8' press line.

The specific goals of this project include:

I. installation of a second metering bin for the 4' x 8' press line,

II. installation of conveyors for transporting and reclaiming furnish, and

III. debugging and commissioning the installed system.

2. INTRODUCTION

The Alberta Research Council Forest Products Program, through funding from the Canada-Alberta Forest Resource Development Agreement, have built and maintained a "state-of-the-art" Panel Development Laboratory. One of the achievements includes the upgraded 4' x 8' press. As a result, the laboratory has grown both in terms of client usage and capabilities. In fact, the facility more resembles a pilot plant than a laboratory.

As an initiative from industry, who demanded a cost effective and modern facility, the ARC proposed a cost sharing project with C-A FRDA to further improve the 4' x 8' press line. The project included the installation and commissioning of a material handling system.

The proposal was accepted, and the project was begun in July of 1989. This report summarizes the project to date.

3. METHODS AND MATERIALS

3.1 Budgeting Quotations and System

Budgetary quotations were solicited from a number of Alberta companies. Because of the uniqueness of the project, only Westways Contractors Ltd. showed sincere interest in taking on such a project. Their proposal was sound and met all the criteria of the project.

Westways Contractors Ltd. provided a budgetary cost estimate for $47,360. This included the following items:

1. retractable lift conveyor and feed conveyor to move material from the blender to the (2) transfer conveyor.

2. reversing transfer conveyor to move material to one of two (3) screw conveyors.

3. screw conveyors, one on each forming bin (core and face), to evenly distribute the material along the width of the metering bin.

4. re-claim conveyors to move material that missed the mat to the (5) elevator.

5. elevator to move the reclaimed material back to the (1) feed conveyor.

6. platform modifications needed to fit the (7) rake-back feed hopper.

7. rake-back feeder hopper (metering bin) to add dual furnish capability.

8. adjustable leg stops on (7) metering bin to allow infinite adjustment of bin position.

9. electrical installation (wiring, start/stop stations, D.C. motor controllers).

3.2 Installation and Commissioning of the Second Metering Bin

The Alberta Research Council had in hand a number of research and development projects on the 4' x 8' press which required different materials in the face and core of the panels. Because two forming bins are needed to do this effectively, it was decided to proceed with the installation of the second metering bin (items 6, 7, and 8) immediately and prior to the other items.

The forming bin was delivered and installed by Westways in September of 1989. The Alberta Research Council completed the electrical wiring. Calibration and commissioning of the bin was carried out in October. In commissioning the bin a number of mats were formed and evaluated for density distribution.

Projects using the 4' x 8' forming line with the second forming bin capability began in November 1989.

3.3 Installation and Commissioning of the Conveying Systems

Final drawings and a fixed price quote were prepared by Westways for the remaining conveyors. (The fixed quote form Westways was approximately 20% over the initial estimates.) This was mainly due to the fact that the retractable lift conveyor could not be mounted to the ceiling as proposed in the initial budgetary estimates. This and the fact that it was decided to modify the initial forming bin in the style of the new bin, the reclaim system (items 4 and 5) were removed from the system.

Because the second forming bin, installed by Westways, was found to be far superior to the first, the modification of the first bin was made a high priority. This was because the Westways designated bin had the motors and drive mounted on the outside of the bin. Therefore there was less maintenance and the material could be loaded into the bin more evenly.

The remaining conveyors were installed in February of 1990. All the electrical components (switches, D.C. motor controllers) were purchased and installed by ARC. However, final hook up was not completed by the end of March 31, 1990. This was because final hook up of the electricals to the ARC utilities needed to be made by Alberta Public Works Supply and Services. The APWSS crew at ARC was committed to another project at ARC for most of February and March of 1990.

Although the final system is not hook up to the utilities, all the conveying items were tested on their own by ARC. This included visual inspection and operating each item individually.

4. RESULTS AND DISCUSSION

4.1 Metering Bin

The second metering bin was installed on budget and in time to be used in 6 provincial and government projects. To date more than 100 panels have been made on the 4' x 8' press, utilizing the second forming bin.

As previously stated, the bin worked well and above expectations. Results from the commissioning trials and later in actual projects showed that even density mats could be formed with the system.

Because of the good results achieved with the second bin, it was also decided to modify the first bin to a similar design.

4.2 Conveying System

The conveyors to move the materials from the blender to the two forming bins have been installed and individually commissioned.

The entire system is not yet hooked up to the facility power. It is anticipated the system will be fully operational by May 1990.

5. CONCLUSIONS

In terms of the specific objectives of this project it can be concluded that:

1. installation of a second metering bin for the 4' x 8' press line is complete,

2. installation of conveyors for transporting furnish is complete, but the reclaim conveyors were omitted from the final scope, and

3. debugging and commissioning of the second metering is complete, and transport conveyors have been commissioned individually (final commissioning of the full transport conveyors is awaiting electrical hook up by APWSS).